

Appl. No. 10/594,388  
Amendment dated September 10, 2009  
Reply to Office Action of May 13, 2009

**REMARKS**

In the May 13, 2009 Office Action, all of the claims stand rejected in view of prior art. No other objections or rejections were made in the Office Action.

***Status of Claims and Amendments***

In response to the May 13, 2009 Office Action, none of the claims are being amended by the current Amendment. Applicant has cancelled claim 8. Thus, claims 1-7 and 9-19 are now pending, with claim 1 being the only independent claim. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

***Rejections - 35 U.S.C. § 103***

On pages 2-5 of the Office Action, claims 1-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable as follows:

Claims 1-5, 8, 10, 11, 14 and 15 are rejected as being unpatentable over U.S.

Patent No. 5,462,817 (Hsu et al.) alone; and

Claims 6, 7, 12, 13 and 16-19 are rejected as being unpatentable over the Hsu et al. patent in view of U.S. Patent Application Publication No. 2004/0062961 (Sato et al.).

In response, Applicants have cancelled claim 8 and traverse the rejections of claims 1-7 and 9-19, as explained below.

Independent claim 1 requires, *inter alia*, (1) a branch flow rate regulating part that branches supplied fluid to said cell stack, said supplied fluid being one of a fuel gas and an oxygen-containing gas, and regulates a flow rate of said supplied fluid to be branched; and (2) a branch flow path that supplies said supplied fluid having been branched and whose flow rate has been regulated to said heat recovery path. Contrary to the assertions of the Office Action, this arrangement is *not* disclosed or suggested by the Hsu et al. patent and/or the Sato et al. publication, singularly or in combination.

The Office Action acknowledges that the Hsu et al. patent publication fails to disclose a branching part as claimed, but asserts that "it would have been obvious to one of ordinary skill in the art at the time of the invention that as it is taught that the medium is sent through two loops, that a part would be required to separate said medium into the two loops in order to utilize one medium reservoir/medium production means." Applicants disagree.

The Hsu et al. patent does not disclose "a branch flow rate regulating part that branches supplied fluid to a cell stack and regulates a flow rate of the supplied fluid to be branched" and "a branch flow path that supplies the supplied fluid having been branched to a heat recovery". Because the Hsu et al. patent describes including *two separated loops (a fuel cell loop and another loop)*, the Office Action alleges that common working medium is sent through the separated two loops, and thus, asserts that it would be obvious that a branch part between the two (separated) loops would exist.

However, the Hsu et al. patent describes that another loop includes a working medium Mc for turbine bottoming cycle (see the Hsu et al. patent at column 8, last paragraph). The Hsu et al. patent does not describe that the working medium Mc is also sent through the fuel cell loop. Rather, judging from the fact that the fuel cell loop performs heat exchange between the incoming reactants (fuel 17, air 19) and the exhaust stream 18 to be exhausted (see the Hsu et al. patent at column 8, lines 40-53), it appears that *the working medium Mc for turbine bottoming cycle is not sent through the fuel cell loop*. In other words, *the Hsu et al. patent teaches away from the modification suggested in the Office Action because a common working medium is not sent through the two loops in the Hsu et al. patent*. Therefore, the reasoning of the Office Action is flawed (i.e., since common working medium is not sent through two loops) and independent claim 1 cannot be rendered obvious based on the Hsu et al. patent alone as asserted in the Office Action. Accordingly, withdrawal of the rejection of independent claim 1 based on the Hsu et al. patent is respectfully requested.

The Sato et al. publication fails to account for the deficiencies of the Hsu et al. patent with respect to independent claim 1. In fact the Office Action merely alleges that the Sato et al. publication discloses a vaporizer, and does not assert that the Sato et al. publication discloses a branch flow rate regulating part that branches supplied fluid to a cell stack and

regulates a flow rate of the supplied fluid to be branched" and "a branch flow path that supplies the supplied fluid having been branched to a heat recovery".

Under U.S. patent law, the mere fact that the prior art can be modified does *not* make the modification obvious, unless an *apparent reason* exists based on evidence in the record or scientific reasoning for one of ordinary skill in the art to make the modification. See, KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1741 (2007). The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some "apparent reason to combine the known elements in the fashion claimed." Id. at 1741. In this case, contrary to the assertions of the Office Action, the current record as well as the general knowledge in the art lacks any apparent reason, suggestion or expectation of success for modifying the structure of the Hsu et al. patent to create Applicants' unique arrangement of "a branch flow rate regulating part that branches supplied fluid to a cell stack and regulates a flow rate of the supplied fluid to be branched" and "a branch flow path that supplies the supplied fluid having been branched to a heat recovery", as required by independent claim 1.

Moreover, Applicants believe that dependent claims 2-7 and 9-19 are also allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, dependent claims 2-7 and 9-19 are further allowable because they include additional limitations, which in combination with the features of independent claim 1, are not disclosed or suggested in the prior art of record.

For example, claim 2 requires "said branch flow rate regulating part increases a ratio of the flow rate of the supplied fluid, in response to partial-load operation or standby operation..." In contrast, the Hsu et al. patent describes that the flow rate of the working medium Mc is to be regulated to a level which can absorb the radiatively transferred waste heat from a fuel cell stack (see the Hsu et al. patent at column 8, lines 59-64). This is not the same as the arrangement set forth in claim 2.

Also, claim 4 (and claims 10 and 14) requires that "said heat recovery path surrounds a heat exchanger...", which the Hsu et al. patent fails to disclose or suggest. In other words, even if the device of the Hsu et al. patent were modified "to exchange heat with the burned gas in order to decrease the amount of heat lost by the system", the Hsu et al. patent does not

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disclose or suggest the claimed manner of heat exchange, "said heat recovery path surrounds a heat exchanger...".

Finally, claim 6 (and claims 12, 16 and 18) requires that "said heat recovery path further surrounds a vaporizer...". The Sato et al. publication discloses a vaporizer but fails to disclose that the heat recovery path surrounds the vaporizer. Thus, the Office Action assertions with respect to claim 6 are also flawed. In other words, even if the vaporizer of the Sato et al. publication was combined with the device of the Hsu et al. patent, the hypothetical device created by this hypothetical combination would not include the features of these claims.

Based on the above arguments, Applicants also respectfully request withdrawal of the rejections of dependent claims 2-7 and 9-19.

\* \* \*

In view of the foregoing amendment and comments, Applicants respectfully assert that claims 1-7 and 9-19 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested. If there are any questions regarding this Amendment, please feel free to contact the undersigned.

Respectfully submitted,

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